

Evaporative Air cooler

Manual

Forward

First of all, thank you for your trust and support for us! Your Evaporative Air Cooler will bring you comfort and health.

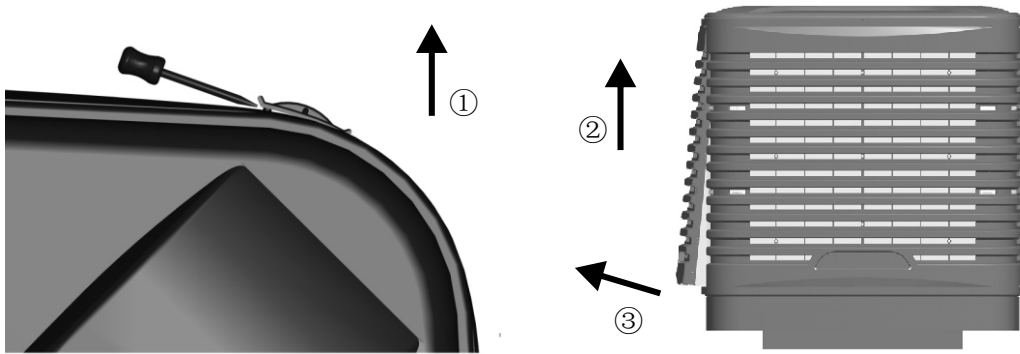
Evaporative Air Cooler, which uses the most advanced evaporation technology, is elaborately produced under advanced management. This brochure is especially for this series Evaporative Air Coolers. Please read this carefully before use.

Precautions

Air cooler must be installed in the place which is well ventilated and dry to ensure that it is bringing 100% fresh air into the room.
Avoid bringing cool air into a closed room, and there must be enough exhaust quantity (at least 0.8m ² per 3600m ³ /h for natural exhaust, and at least 85% of the airflow for mechanical exhaust), and natural exhaust and mechanical exhaust could be combined.
When first operated, the air cooler must be debugged, and ensure running currency not exceed rated currency.
Be sure to prevent it from any source of fire.
Try to make voltage within $\pm 10V$. Air cooler will not start or be on and off repeatedly if the voltage is too low, and it could easily be damaged if being operated under too low or too high voltage continuously.
On-wall controller and control lines should be kept away from strong electromagnetism interference sources, prevent them from being paralleled with the power lines. If required, ensure the parallel space is at least 30cm.

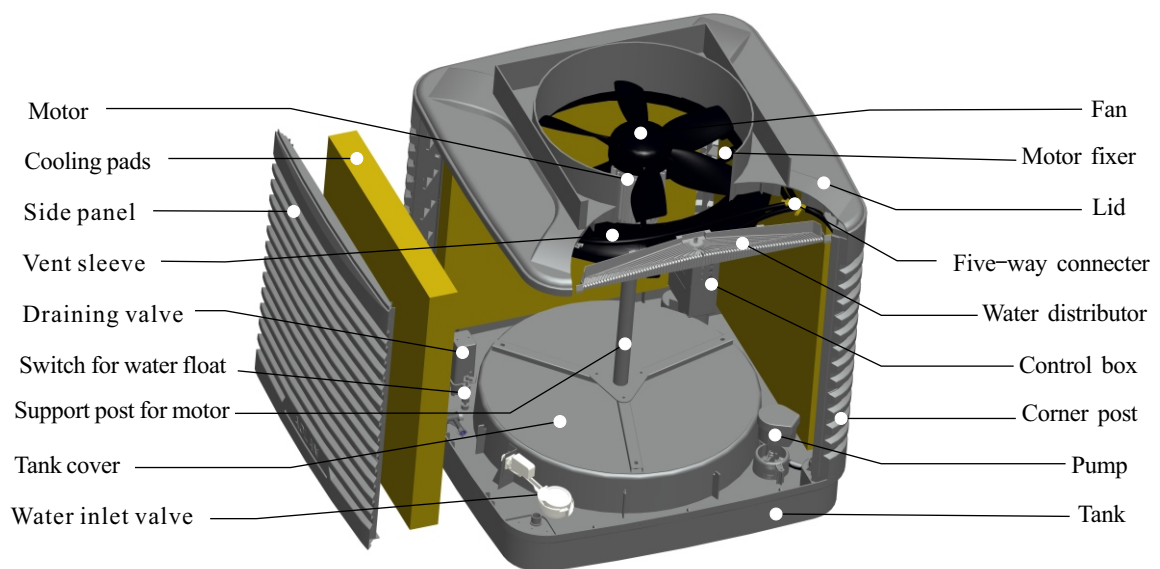
● Guide for Installation

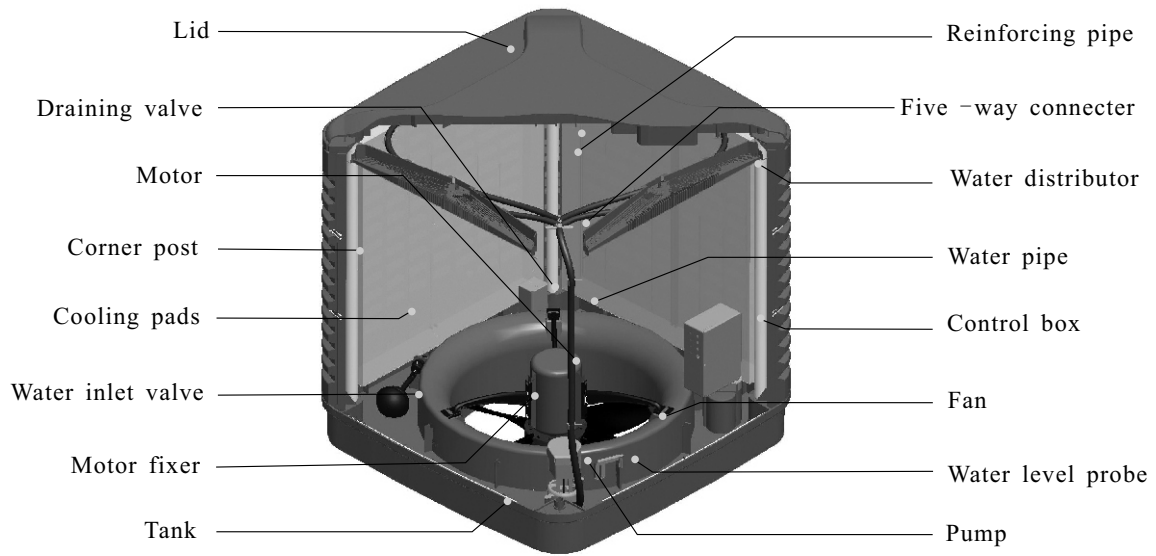
● Guide for Installation and Uninstall of Cooling Pads



- (1) Prize up the clip connecting the panel and the post, as Graph①shows.
- (2) Hold and lift the side panel vertically until it is apart from the bottom, as Graph②.
- (3) Pull it out, as Graph③.

● Section Diagram





●Packaging and transportation

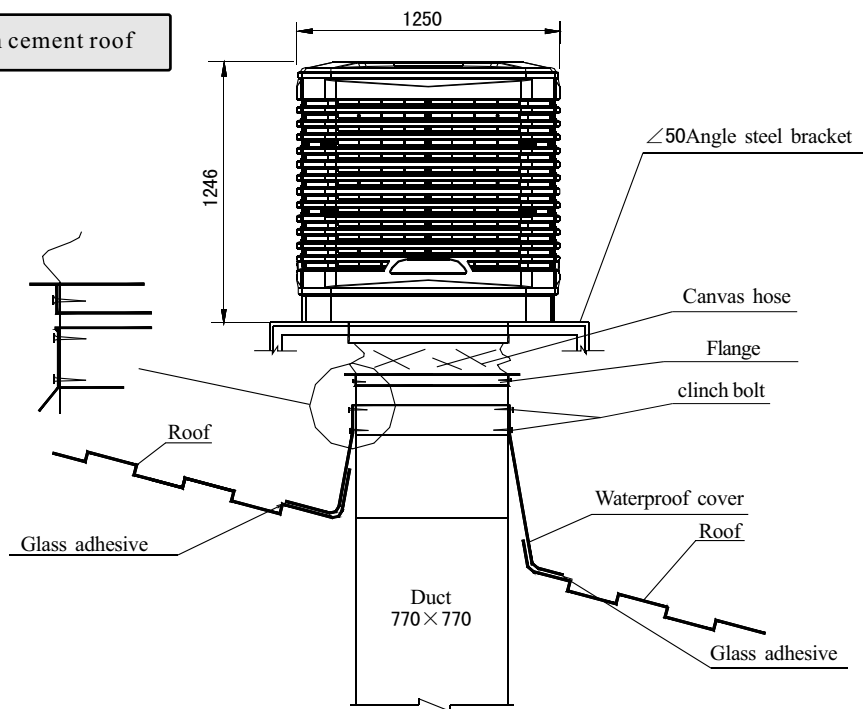
- (1)Using wooden pallet and plastic shrink film package
- (2)Handle with care, pay attention to moisture, keep upright, no more than two layers
- (3)Keep vertical and pay attention to safety when moving and lifting. Angle should be less than 15 degrees when tilting

●Inspection and Preparation before Installation

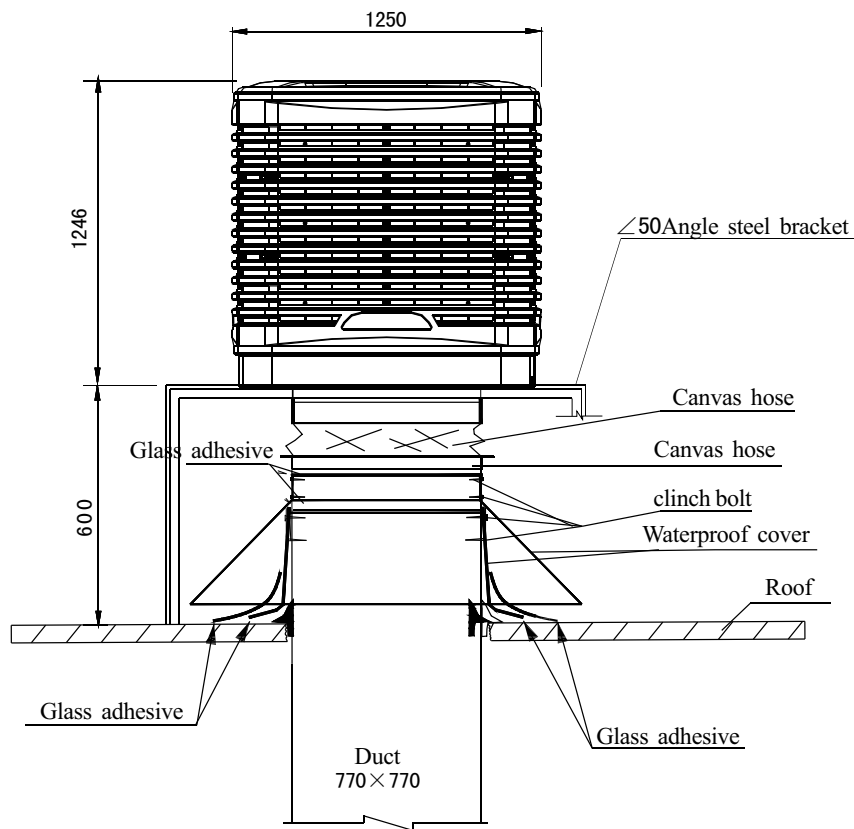
- (1)Check if spare parts and technical data(specification, quality certificate and service card and so on) are complete after opening. Please keep intact and inform factory or distributor immediately, if there is any missing or damage
- (2)Check if power supply voltage and current are consistent with rated voltage and current.

● Examples for Installation

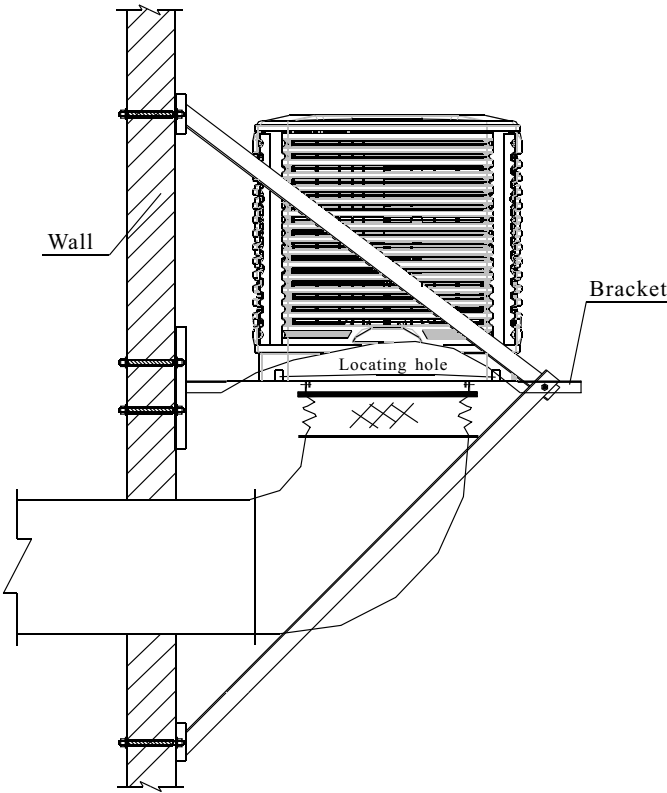
Down discharge, side wall installation on cement roof



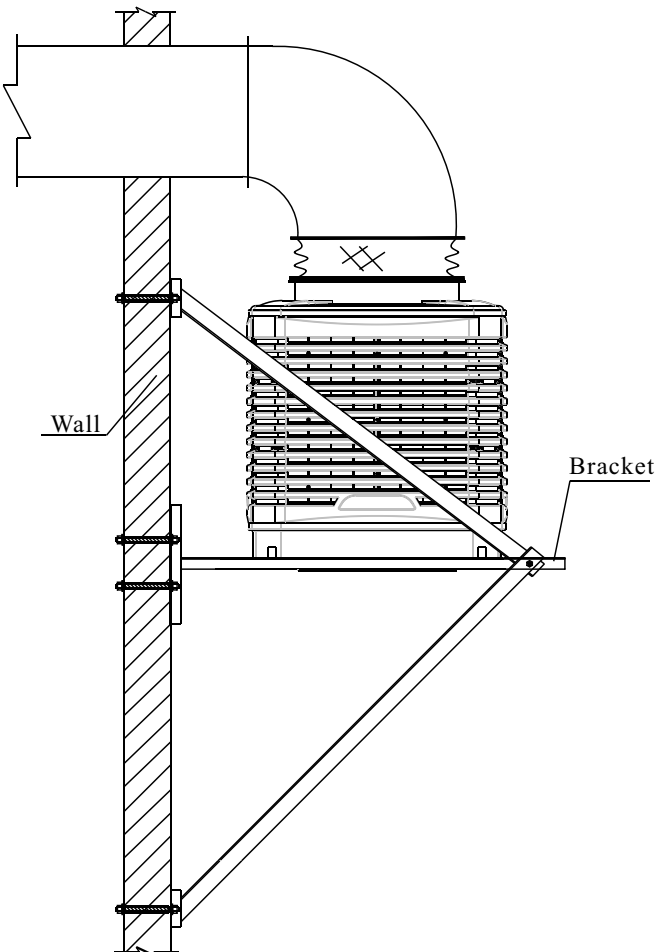
Down discharge, side wall installation on cement roof



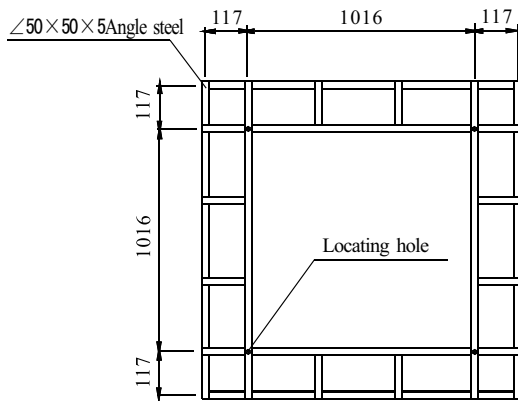
Down discharge, side wall installation



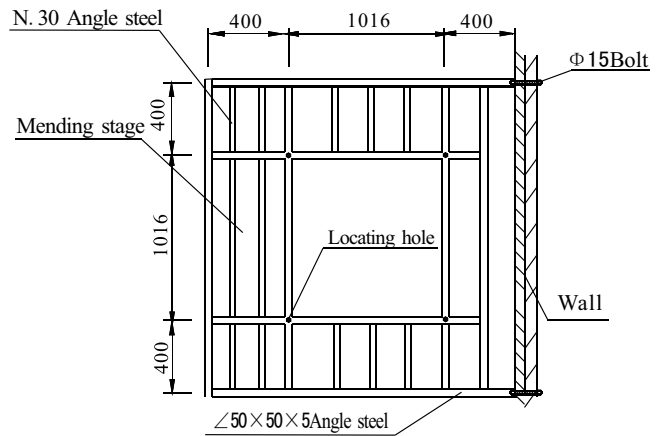
Up discharge installation



Installation of bracket(Not Supplied)



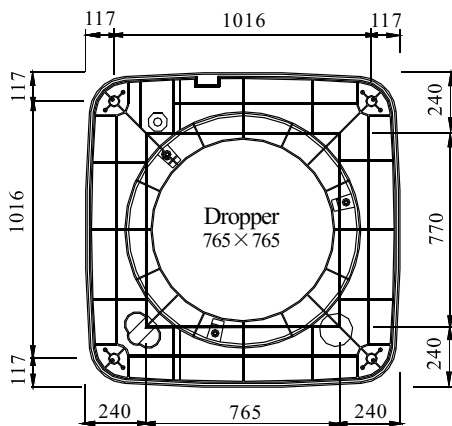
Roof installation bracket



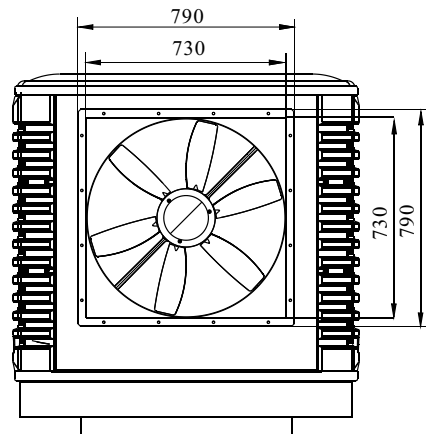
Side wall installation bracket

Dropper dimension

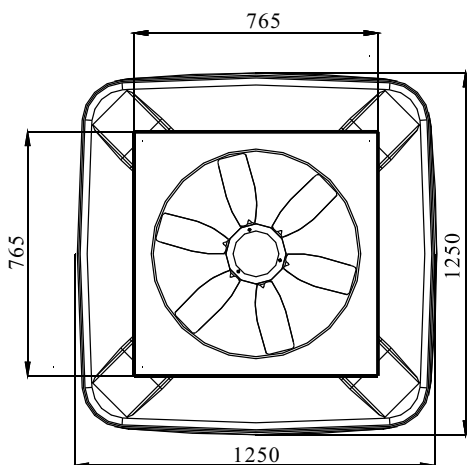
Down discharge dropper dimension



Side discharge dropper dimension



Up discharge dropper dimension

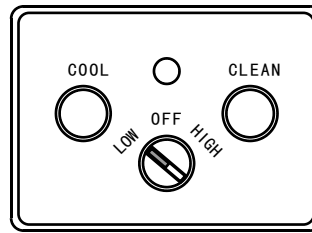
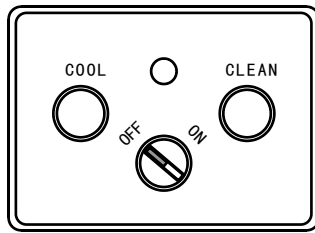


Tips:

As the Graphs show, there are 4 locating holes on the bottom of air cooler. So wherever it is installed, there should 4 steel tubes, whose diameter are 30 mm and height are 35 mm, joined with the bracket, and are fixed in the locating holes, in order to avoid movements of the air cooler.

Guide for Users

● Instruction for On-wall Controller



1、 Three-phase and single-speed

- 1)Knobs: green one for cold, yellow one for clean water
- 2)2-position knob for the cooler's ON and OFF
- 3)Red indicator (LED) shows the working condition of air cooler.

2、 Three-phase and 2-speed

- 1) Knobs: green one for cold, yellow one for clean water
- 2) 3-position knob for the cooler's high speed , low speed and off.
- 3)Red indicator (LED) show the working condition of air cooler.

●Operation Introduction

1、 Start

In the waiting mode, turn the knob to "ON" for 31 series, turn the knob to "HIGH" or "LOW" for 32 series, LED lights, then the machine will be in a ventilation mode. If you want it in a cooling mode, you could follow the guide of switch mode.

2、 Switch mode

In the ventilation mode, only the fan is running, and the pump and the water inlet valve are closed. Press "COOL" button to switch it to the cooling mode, LED and "COOL" button lights. Here the system will start to control the water circulation automatically.

If the pre-cooling function is started (as system parameter setup shows) , the pump and the water supply system will start first, and after 4 minutes the fan will start to make machine in a cooling mode.

If it is from ventilation mode into cooling mode, the pre-cooling function will be invalid.

3、 Close

In the cooling or ventilating mode, turn the knob to "OFF" to close the machine. Here every function will be turned off except cleaning function.

4、 Adjusting airflow

In the cooling or ventilating mode, turn the knob to "HIGH" to use the high airflow, and turn the knob to "LOW" to use the low airflow.

Ps:For 31 series,there is no function like this

5、 Cleaning

Press "CLEAN" button to start cleaning function, "CLEAN" button lights. Here the light will sparkle once every 3 seconds and the draining valve will open to drain water out of the sump as well as to wash the sump. Press "CLEAN" button again to stop cleaning (The factory pre-set value is 8 hours) .

※Whenever the machine is on,the "CLEAN" function could be started.

※Once the cleaning function is running without closing manually,the system will turn off it automatically when the cleaning has been over.

● System Parameter Setup

Our control system is using DIP number to control the hardware and the objectives of 4 numbers as below:

1# is to enable/disable 8 hours automatic cleaning function (default is close);

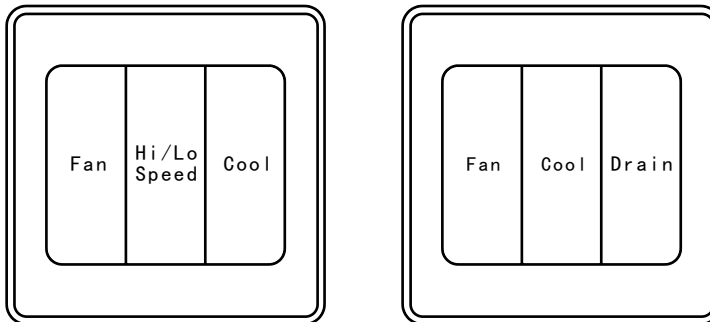
2# is to enable/disable 4 mins cooling function (default is close).

● Operation Indication and Alarming .

If there is any problem, the light (LED) will sparkle according to following description:

Tip	Introduction	Recovery
Fan LED sparkle	Fan current failed	Repair electric hair-dryer
Cool LED sparkle	Lack of water	Repair the water system
Clean LED sparkle	Drainage jam	Repair the drainage system
Three LED sparkle	Communications breakdown	Repair the control line

● Instruction for Electric Control Switch



(1) When power is on, press "Fan" button, the fan will be started and air cooler start to supply air.

(2) Press "Cool" button, the pump will be started and the pad will become wet, and then air cooler start to refrigerate.

(3) Press "Clean" button, drain valve will be started and tank begins to drain water.

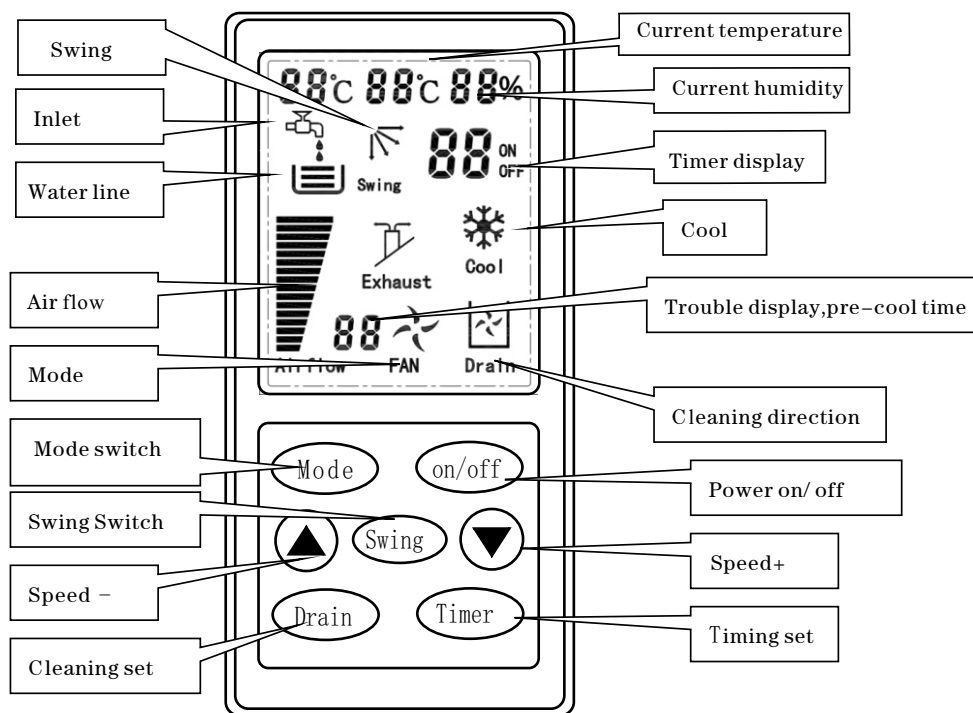
(4) Press "Hi/Lo Speed" to alternate wind Speed.

Tip:

The picture of the manual is for a reference only, the actual item is the standard.

● Functions and Operation Requirements for Control Box w/PCB of 3KW Frequency Conversion

I .Operation and setting instructions



(1) ON/OFF	When power on, the cooler is in standby mode, and by ON/OFF, it will be in cool mode. Note: When the cooler is in cleaning function, no matter you start or stop the cooler, cleaning will not be affected.
(2) MODES	In cool mode, press MODE, the cooler will enter into vent mode. In vent mode, press MODE, the cooler will enter into cool mode. Note: MODE is only for modes switch, but not for starting or stopping the cooler.
(3) SPEED+ /SPEED-	In cool or vent mode, press "▲" or "▼" to increase or decrease wind level. The max, wind level is 10, min is 1.
(4) CLEAN	In standby, cool or vent mode, press CLEAN, the cooler will start clean function. And the function will be stopped by pressing CLEAN again.
(5) SWING	In cool or vent mode, press SWING, the cooler will start swing function. And it will be stopped by pressing SWING again.
(6) Setting for Timer-ON/OFF	In standby, cool or vent mode, press TIMER and it will enter in timer-setting, at this time, 00 shows with ON flashing (when setting timer-on, it displays); press SPEED+, 00 shows with OFF flashing (note for selecting timer-off), press SPEED+ again, only 00 shows (note for close timer-setting)
Timer-ON	In timer display area, when 00 shows with ON flashing, press TIMER again to Timer-ON setting; and at this time, 00 and ON flashing together, press SPEED+ or SPEED- to alert the time, then press TIMER again, the setting is finished.
Timer-OFF	In timer display area, when 00 shows with OFF flashing, press TIMER again to Timer-OFF setting, and at this time, 00 and OFF flashing together, press SPEED+ or SPEED- to alert the time, then press TIMER again, the setting is finished.
Setting for Timer-Cancel	When 00 shows in timer display area, press TIMER again to cancel the timer function.
(7) Pre-Cool Setting	In standby mode, press MODE for 3 seconds and it will enter in pre-cooling setting. Press SPEED+ or SPEED- to alert the pre-cool time with range from 1 to 4 minutes. When pre-cool time is set as 0, pre-cool function is closed. The default is 0.

(8)Setting for Timer-Auto-Clean	In standby mode, press CLEAN for 3seconds and it will enter into Timer-Auto-Clean setting. Press SPEED+or SPEED- to alert the time for auto clean, with range from 1 to 72 hours. When the timer is set as 0, Timer-Auto-Clean is closed. The default is 0(The factory pre-set value is 8 hours)
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(9)Display for Auto Control of Temperature and Humidity	Note: The above setting will be saved when power off(except for 9.)
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II . Instructions for LCD Display Info

Info	Instruction	Buzzle	Info Clear
E1	Bad Communication	Repeat Buzz Note	Auto cleared when good communication
E2	Water Lack Trouble	Repeat Buzz Note	Auto cleared when water added
E3	Auto-Clean	Repeat Buzz Note	Auto cleared when clean finishing
E4	Drain Blocked	Repeat Buzz Note	Press CLEAN to clear it
E5	Over-current, phase-shortage	Repeat Buzz Note	Press ON/OFF to clear it
E6	Undervoltage	Repeat Buzz Note	Press ON/OFF to clear it
E7	Overvoltage	Repeat Buzz Note	Press ON/OFF to clear it

● How To Use LCD Controller(Optional Function)

1.Delay shutdown function: In the mode of ventilating or cooling, press"Off",pump will be off(in the mode of cooling), while fan motor will be on for more 30 minutes(Screen displays"Vent")

Note: ①Press "Off" for 5 seconds in order to turn off immediately;

②During the 30minutes of Delay shut down, press"Cool" or "Vent", unit will be restarted.

2.Self cleaning function when unit is on or off: When unit is on or off, cleaning will be performed.

3.0-72 days self cleaning function: Set the self cleaning time according to demand. The longest is 72 days.

4.The function of drain when the machine is on and off.

● Points for Designing Duct System

(1) The material of ducts should be galvanized sheets, or glass steel, plastic, aluminum foil sheets, and etc.

(2) Grilles or diffusers should be installed at the places where cooling is needed. The specification of them could be decided according to airflow and air speed. And the material could be aluminum, wood and etc., and the type could be selected according to actual situations. We recommend Double Deflection Air Grille with 3-6m/s airflows speed, and a damper is recommended.

(3) The duct should be designed that, the wind velocity is 6-8m/s in the main duct, 4-5 m/s in the branches, and 3-4 m/s at the end.

(4) The design of the duct system is required to be economical, low resistance and low noise. And to reduce the resistance, the curvature radius of the elbow should not be less than 1.5 times of the width of the elbow.

(5) It is much better to make the duct go straight, avoiding corners and branches, to reduce resistance.

(6) Auto swing air grilles as well as duct could be used for side discharge air coolers.

(7) According to different airflows, the duct should be designed with sections of different specifications to be connected together. The longer the duct is, the smaller the section should be.

(8) If there are branches, dampers should be fixed to adjust airflow.

● Water and Power Supply

- (1) Clean water should always be used, and pressure is required to be between 0.15 to 0.3 MPa (1.5~3kgf/cm²)
- (2) There should be a valve (DN20) near the water inlet hose and a pipe joint for cleaning.
- (3) Ensure the single-phase voltage is 220-240V±10V and the 3-phase voltage is 380-450V±10V.

● Operation and Maintenance

Check before Operation	(1) Is the machine horizontal?
	(2) Is the draining pipe installed?
	(3) Is the water supply system leaking?
	(4) Is the water level normal?
	(5) Is the power connected correctly (especially for 3-phase machine)?
	(6) Are the control lines fixed correctly?
	(7) Are there any sundries in the tank?
	(8) Are there any sundries in the fan or the vent sleeve?
	(9) Is the power or the voltage normal?
	(10) Is the machine running under the rated power scope?
	(11) Is the machine shaking when running?
Maintenance	(1) The cooling pads should often be cleaned to ensure the cooling efficiency. When cleaning, do not use high-pressure water or hot water (up to 40°C), and clean them by soft brush to remove dust.
	(2) To prevent the machine from freezing in winter, turn off water supply and drain if the machine will be leaved unused for a long time. Cover it in dusty or snowy circumstance if necessary.
Cleaning	(1) This series type has self-cleaning function.
	(2) In order to guarantee the air conditioner operates within optimum conditions, it is suggested that each month the self cleaning function is performed.

REMARK



Attachment: Trouble shooting

No.	Problem	Possible cause	Suggested remedy	remark
1	Air cooler does not work, and buttons fail to respond	Power cut or incorrect power connection	Measure end voltage and connect power correctly	
		Circuit breaker tripped or fuse blown	Reset circuit breaker or replace it	If this happens again, the reason of over-power should be further checked.
		Loose connection between control box and outside machine	Check connections	
		Defective controller.	Replace control panel.	
2	No airflow	Overheat protection for motor.	It will be automatically Recovered after 20min.	
		Loose electrical Connections	Check all electrical connections	
		Heat relay or contact is broken.	Replace it	Check parameters of voltage and power of relay.
		Precooling function is on	Recovered after 4 minutes. Turn off precooling function	
		Defective controller	Replace it	
		Defective motor	Replace it	
3	Pump is working, but inadequate cooling	Inadequate exhaust	Expand exhaust	
		Cooling pads are clogged or dirty.	Clean cooling pads. Or replace it if necessary.	
		Insufficient air discharge openings for spot cooling, causing high temperature partially.	Install air grilles for the places which need cooling	
		Dry pads or lack of water while air cooler is in operation.	Check water distribution system for possible obstruction; check pump	
		Excessive Ambient Humidity	On days during the summer when the ambient humidity is very high, the air conditioner will not reduce temperature as much as on drier days. You could shut off the pump and ventilate more.	
4	Pump fails to work under refrigeration	Pump is broken	replace it	
		Loose electrical connection	Tighten connection	
		Lack of water in the tank	Check water inlet valve and water supply pipe	
		Incorrect Water level sensor connection or defective	Check connection or replace it	
		Defective controller	Replace it	
5	Pump runs, but not circulates water, or pads	Pump strainer blocked	Clean strainer	
		Water supply pipe blocked	Clean pipe	
		Water distributor blocked	Clean water distributors	
6	Often self cleaning or continuous overflow of water	Self cleaning function is on	Check the parameter of self cleaning	Self cleaning function is on. It can be turned off.
		Water inlet valve or water level probe is defective	Check the water inlet valve and water level probe	
		Drain valve water leakage or defective	Check or replace the drain valve	
		Defective controller	Replace it	
7	Water being thrown into the room	Cooling pads are badly blocked	Clean or replace it	
		Excessive water in pads	Water distributor unbalance	
8	Unpleasant odour	Air cooler located near source of unpleasant odour;	Clean whole cooler	
9	White deposit in cabinet and on cooling pads.	High salt content of water supply	Drain more frequently	